Original Article

Mean time of catheter removal in bipolar versus monopolar diathermy in transurethral resection of prostate for benign prostatic hyperplasia

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Objective: To compare the mean time of catheter removal in Bipolar versus monopolar Diathermy in Transurethral Resection of Prostate (TURP) for benign prostatic hyperplasia (BPH) at our institution.

Methodology: This randomized control trial was conducted at department of urology CMC/SMBBMU Larkana, from 14th March 2017 to 13th September 2017. A total of 80 patients with failure of medical therapy for BPH, confirmed by persistent or progressions of bothersome voiding symptoms, in presence of α blockers were included in the study. They were randomly allocated into two groups with 40 each group. Group A was treated with Bipolar Diathermy and 40 in Group B with Monopolar Diathermy. In Patients post TURP catheter was removed, when there was no blood in urine begs on naked eye and time was recorded.

Results: Mean age of the patients was 71.84±7.60 years. In bipolar, TURP mean time of catheter removal was 19.33±4.64 hours and in monopolar TURP, mean time of catheter removal was 35.90±6.86 hours. Mean time of catheter removal was significantly low in group A than group B.

Conclusion: The bipolar transurethral prostatectomy TURP is as effective as conventional monopolar TURP with the additional advantage of decreased duration of catheter use and hospital stay. (Rawal Med J 202;46:83-86).

Keywords: Transurethral resection of prostate, benign prostatic hyperplasia, catheter removal.

INTRODUCTION

Lower urinary tract symptoms (LUTS) are a common problem affecting old age. Prevalence of LUTS related to BPH increases with age, approaching 50% by age 60 years and 90% by age 85 years.[1,2] There are numerous remedies available for these bothersome symptoms and BPH-related complications like azotemia, recurrent UTI, bladder calculi, acute retention, and recurrent hematuria.[3,4] Management includes watchful waiting, pharmacological therapy, minimally invasive therapy (MIT), TURP and open prostatectomy.[5-7]

Of the 8 million men in the USA with moderate to severe BPH and who are candidates for intervention, it is estimated that 30% of men aged >65 years will require urological intervention.[1,2,8] Despite advances in MIT, TURP remains the reference standard to which all other surgical therapies are compared. However, TURP most often requires hospital admission and is associated with various complications, including bleeding, TUR syndrome, incontinence, impotence, urethral stricture, bladder neck contracture and prolonged catheterization.[6,9]

Several studies have shown that in bipolar TURP, mean time of catheter removal was 19.05±3.92 hours and in monopolar TURP mean time of catheter removal was 39.25±10.223 hours.[10-12] The purpose of the present study was to compare the mean time of catheter removal with monopolar versus bipolar diathermy after TURP in BPH, that may reduce the hospital stay, early recovery and early return to work, hence reduces the cost.

METHODOLOGY

This is a randomized control trial conducted at department of urology CMC/SMBBMU Larkana, from 14th March 2017 to 13th September 2017. Total of 80 patients with age >60 years and <90 years with BPH, failure of medical therapy confirmed by persistent or progression of bothersome voiding symptoms in presence of α blockers and BPH associated with bladder stone confirmed by ultrasound were included in the study. Patients not

giving informed written consent, history of bleeding diathesis confirmed by prothrombin time (PT) and activated partial thromboplastin time (APTT) and having urinary tract infection confirmed by urine culture and sensitivity were excluded from study. The study was approved by University ethical review committee.

Total sample was randomized in two groups by lottery method, equal slips were made and kept in one box, and patients were asked to take one slip. In Group A, TURP with Bipolar Diathermy was done by consultant Urologist having more than 5 years of post-fellowship experience of TURP. In Group B, TURP with Monopolar Diathermy was done by same Urologist. After TURP, catheter was removed when there was no blood in urine beg on naked eye and time was recorded.

Statistical Analysis: Statistical analysis was performed using SPSS version 22. Independent sample t test was applied to compare mean time of catheter removal between groups. Effect modifiers age, duration of BPH, diabetes mellitus and hypertension were controlled through stratification. $p<0.05$ was considered significant.

RESULTS

Age distribution of the patients with respect to groups is shown in Fig. 1. The average age of patients was 71.84±7.60 years. There were 23(28.8%) diabetic and 53(66.3%) hypertensive patients.

Fig. 1. Age distribution of the patients.

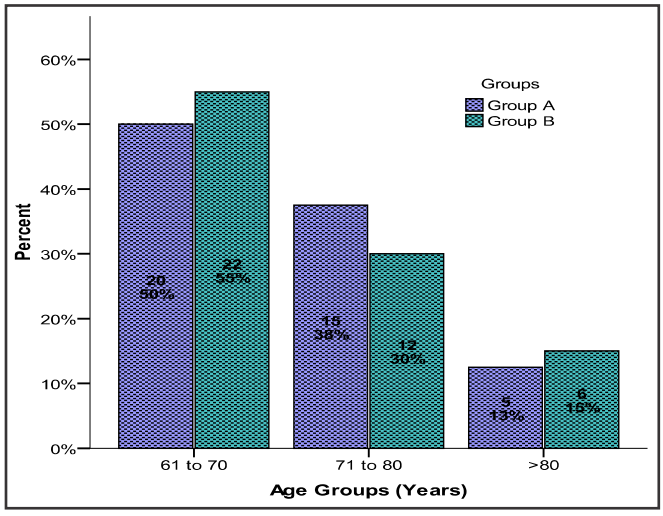

Fig. 2. Comparison the mean time of catheter removal.

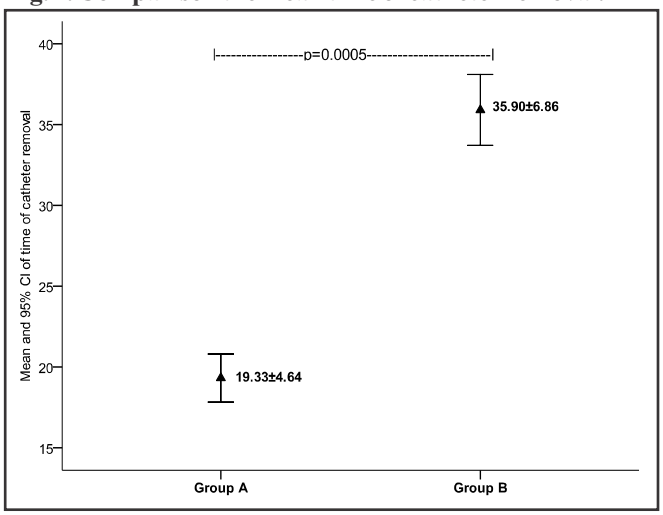

Table. Comparison the mean time of catheter removal according to age.

Age Groups (Years)		Groups	N	Mean	Std. Deviation	P-Value
61 to 70 Years	Time of catheter removal	Group A	20	19.50	5.03	0.0005
		Group B	22	37.41	7.60	
71 to 80 Years	Time of catheter removal	Group A	15	19.27	4.77	0.0005
		Group B	12	33.25	6.55	
>80 Years	Time of catheter removal	Group A	5	18.80	3.11	0.0005
		Group B	6	35.67	1.75	

In bipolar TURP, mean time of catheter removal was 19.33±4.64 hours and in monopolar TURP mean time of catheter removal was 35.90±6.86 hours. Mean time of catheter removal was significantly low in group A than group B (Fig. 2). It was observed that mean time of catheter removal was significantly low in group A than group B in all stratified groups as shown in the Table.

DISCUSSION

BPH is the most common non-malignant illness of the prostate, affecting more than 50% of the aged male population.[13] Despite the fact that medical therapy is the first line treatment for BPH, a significant percentage of patients with moderate to severe BPH will require surgical interference.[14] For over 8 decades, transurethral resection of the prostate (TURP) has been considered the cornerstone of surgical management for benign prostatic obstruction (BPO), due to the procedure's outstanding, well-documented, long-term treatment

efficacy.[14] Nevertheless, the morbidity of the procedure, notably TURP-syndrome, bleeding and urethral stricture, remains significant at 11.1%, based on a prospective, multicenter study of 10654 men.[15]

To date, several randomized trials comparing bipolar and monopolar TURP have been conducted. Although a few trials have suggested that bipolar resection is effective and potentially safer for the treatment of BPH, most others are inconclusive and fail to demonstrate superior outcomes for B-TURP.[16,17] In this study, in bipolar, TURP mean time of catheter removal was 19.33±4.64 hours and in monopolar TURP, mean time of catheter removal was 35.90±6.86 hours. There was significant difference in two groups.

The prevalence of BPH rises markedly with age. Autopsy studies have observed a histological prevalence of 8%, 50% and 80% in the 4th, 6th and 9th decades of life, respectively.[18] Multiple observational studies from Europe, the US and Asia have demonstrated older age to be a risk factor for BPH onset and clinical progression by several different metrics.[19,20] A recent study by Platz et al followed 9628 men for progression of LUTS over 18 years based on IPSS and observed that the incidence and progression rates of LUTS increased steeply as the men aged, with progression rates being higher than incidence rates.[21]

Prior studies have consistently observed that increased adiposity is positively associated with prostate volume: The greater the amount of adiposity, the greater the prostate volume. Body weight, body mass index (BMI) and waist circumference have all been positively associated with prostate volume.[22] In our study, the BMI status of all patients was in over weight group with mean 27.65 kg/m.^{2} in group A while 27.55kg/m^2 in group B.

Physician-diagnosed diabetes, increased serum insulin and elevated fasting plasma glucose have been associated with increased prostate size and increased risks of prostate enlargement in multiple different cohorts.[23,24] In our study, 30% of patients in group A and 27% of patients in group were diabetics. In another study, the patients treated by Gyrus TURP had their catheter removed a mean of 1.4 days earlier than the standard group, improving patient comfort, length of hospital stay, and costs.[7] Other studies with bipolar TURP have reported high rates of re-catheterization and that irritative symptoms were more common in the bipolar group, probably as a result of edema secondary to higher current with lower frequency exerted on the tissue.[8]

CONCLUSION

The bipolar transurethral prostatectomy (TURP) is as effective as conventional monopolar TURP with the additional advantage of decreased duration of catheter use and hospital stay. Therefore, bipolar TURP is a promising new technique that may prove to be a good alternative to conventional TURP in the future.

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